CEST 85 Course Outline as of Fall 2021

CATALOG INFORMATION

Dept and Nbr: CEST 85   Title: CADD CIVIL SURV LAND DEV
Full Title: CADD for Civil, Surveying and Land Development
Last Reviewed: 10/24/2022

Units		Course Hours per Week		Nbr of Weeks	Course Hours Total	
Maximum	3.00	Lecture Scheduled	2.00	17.5	Lecture Scheduled	35.00
Minimum	3.00	Lab Scheduled	3.00	6	Lab Scheduled	52.50
		Contact DHR	0		Contact DHR	0
		Contact Total	5.00		Contact Total	87.50
		Non-contact DHR	0		Non-contact DHR	0

Total Out of Class Hours: 70.00   Total Student Learning Hours: 157.50

Title 5 Category: AA Degree Applicable
Grading: Grade Only
Repeatability: 00 - Two Repeats if Grade was D, F, NC, or NP
Also Listed As:
Formerly: CET 85

Catalog Description:
Computer-aided Drafting and Design (CADD) for civil engineering, surveying and land development technicians. Industry standard civil engineering software program will be utilized in this course. Areas covered include input of surveying data for boundary and topography. Creation of a digital terrain model, roadway alignments, earthwork, grading plan, plan view, profile view and cross section drawings as they relate to the civil engineering, surveying and land development profession.

Prerequisites/Corequisites:
Course Completion of CEST 51

Recommended Preparation:

Limits on Enrollment:

Schedule of Classes Information:
Description: Computer-aided Drafting and Design (CADD) for civil engineering, surveying and land development technicians. Industry standard civil engineering software program will be utilized in this course. Areas covered include input of surveying data for boundary and

topography. Creation of a digital terrain model, roadway alignments, earthwork, grading plan, plan view, profile view and cross section drawings as they relate to the civil engineering, surveying and land development profession. (Grade Only)
Prerequisites/Corequisites: Course Completion of CEST 51
Recommended:
Limits on Enrollment:
Transfer Credit: CSU;
Repeatability: Two Repeats if Grade was D, F, NC, or NP

ARTICULATION, MAJOR, and CERTIFICATION INFORMATION:

			Effective:	Inactive:
AS Degree:	**Area**		Effective:	Inactive:
CSU GE:	**Transfer Area**		Effective:	Inactive:
IGETC:	**Transfer Area**		Effective:	Inactive:
CSU Transfer:	Transferable	Effective: Fall 1995	Inactive:	
UC Transfer:		Effective:	Inactive:	

CID:

Certificate/Major Applicable:
Both Certificate and Major Applicable

COURSE CONTENT

Student Learning Outcomes:
At the conclusion of this course, the student should be able to:
1. Use 3D civil engineering software to generate technical drawings and design documentation
2. Generate digital terrain surface models from survey data
3. Create parcel boundaries and data for subdivisions
4. Create horizontal and vertical alignments for roadways

Objectives:
Upon completion of this course, students will be able to:
1. Create, edit and manage point data including importing and exporting
2. Create and properly label lines and curves for civil engineering projects
3. Perform subdivision computations for area and boundary information
4. Create a digital terrain model surface of the existing ground from point, contour, fault and break line data
5. Create a finish grade or design surface
6. Create, label and edit contours from digital terrain model surface data
7. Create horizontal and vertical alignments for roadways
8. Create profiles and cross sections of roadways from alignments or survey data
9. Draw and define roadway assemblies
10. Compute earthwork volumes using alignments, profiles, cross sections and corridors
11. Create a set of improvement plans, including plan, profile, cross sections and details, using civil engineering software

Topics and Scope:

1. An overview of CADD in civil engineering, surveying and land development
2. Drawing set up
3. Creating and managing points, lines, labels, curves and tables
4. Parcel computations and labeling
5. Terrain surface modeling and contours
6. Creating alignments with stationing
7. Creating profile and cross section views
8. Volume computations
9. Creating assemblies
10. Creating improvement plans for civil engineering and land development projects

LABORATORY TOPICS & SCOPE
Instructor Provided - Lab Exercises using AutoDesk Civil 3D (C3D) Application
1. C3D -- User Interface
2. Basic techniques
3. Working with C3D Points
4. Lines and curves (AutoCAD vs. C3D)
5. Setting styles
6. Parcels
7. Surfaces
8. Grade(s), grading & grading groups
9. Shortcuts & X-refs
10. Alignments
11. Profiles
12. Assemblies
13. Corridors
14. Cross sections
15. Pipes
16. Plan Production Tools
17. Civil Survey Tools add-on pack

Assignment:

1. Read chapters of the textbook (1-2) per week
2. Lab exercises using CADD technology (10-17)
3. Homework: Analytic computation assignments (3-6)
4. Quizzes (4-8)
5. Final exam

Methods of Evaluation/Basis of Grade:

Writing: Assessment tools that demonstrate writing skills
and/or require students to select, organize and explain ideas
in writing.

	Writing 0 - 0%
None, This is a degree applicable course but assessment tools based on writing are not included because problem solving assessments and skill demonstrations are more appropriate for this course.	

Problem Solving: Assessment tools, other than exams, that demonstrate competence in computational or non-computational problem solving skills.

Homework: Computational analysis assignments	Problem solving 10 - 25%

Skill Demonstrations: All skill-based and physical demonstrations used for assessment purposes including skill performance exams.

Lab exercises	Skill Demonstrations 40 - 60%

Exams: All forms of formal testing, other than skill performance exams.

Quizzes and Final: Multiple choice, True/false, Matching items, Completion, Analytical Computations	Exams 30 - 50%

Other: Includes any assessment tools that do not logically fit into the above categories.

None	Other Category 0 - 0%

Representative Textbooks and Materials:
An Introduction to Civil 3D. Coleman, Geoffrey J. SDC Publications: 2014
Mastering AutoCAD Civil 3D 2015. Davenport, Cyndy and Voiculescu, Ishka. Sybex Publications: 2014